

In the Specification

Please replace first paragraph on Page 1 as follows:

Technical Field of the Invention

~~The present invention~~ This disclosure relates to alicyclic or aromatic polyamides and polyamide films suitable for use in optical field, protection member field, etc.

Please replace second paragraph on Page 1 as follows:

Background Art of the Invention

Although various colorless transparent materials have been investigated depending upon various uses such as functional optical films, disc substrates, etc., the functions and performance required for the materials themselves have become more precise and more high-level accompanying with a rapid change of information equipment to be small-sized and light-weight and a development of display elements to be high-fineness.

Please replace fourth paragraph on Page 1 as follows:

Thermoplastic resins having a high transparency such as a polycarbonate are employed broadly as an optical use, and they are considered to be used as optical films such as retardation films and substrates for discs. Especially, a retardation film is one of the important structural members deciding a contrast of a reflection type color liquid crystal display. Although polycarbonates used at the present time are described in, for example, ~~the following patent documents 1 and 2, they~~ JP-A-4-204503 and JP-A-9-304619 do not have a satisfactory wavelength dispersion property. In order to make a reflection type color liquid crystal display high-contrast, an increase of the wavelength dispersion property of a polymer film used as a retardation film has become one of the technical subject matters.

Please replace first paragraph on Page 2 as follows:

On the other hand, although a polyimide is well known as a polymer having a thermal resistance, because a usual polyimide is colored with a brown color, it cannot be applied for an optical use. As a polyimide having a transparency, for example, a wavelength plate is disclosed in ~~the following patent document 3~~ Japanese Patent No. 3259563. However, because the polyimide **according to this invention** takes two hours or more for thermal imidization reaction, it is difficult to use this polyimide industrially. Further, this patent document does not touch Young's modulus which is an important factor for an optical film, at all.

Please replace paragraph spanning Pages 2 and 3 as follows:

Further, although aromatic polyamide films have high thermal resistance and mechanical properties and they can satisfy the thermal resistance and mechanical properties required for retardation films or protection films sufficiently, a para-oriented aromatic polyamide such as PPTA is colored with a yellow color, and it was difficult to develop such a polyamide for an optical field. For example, although a thermal-resistance transparent conductive film is disclosed in ~~the following patent document 4~~ JP-B-7-89452, the transmittance at a wavelength of 600 nm of this film is low to be 71 % even in the examples, and because the transmittance at a lower wavelength side is further low, it is not practical. Further, although ~~the following patent document 5~~ discloses an aromatic polyamide film having a specific structure, a film having a high transparency cannot be obtained from the reason that the molar fraction of the specific structure is low, etc.

~~[patent document 1]: JP-A-4-204503~~

~~[patent document 2]: JP-A-9-304619~~

~~[patent document 3]: Japanese Patent 3259563~~

~~[patent document 4]: JP-B-7-89452~~

~~[patent document 5]: JP-A-7-149892~~

Please replace first paragraph on Page 3 as follows:

Disclosure of the Invention

~~The present invention has been achieved as the result of investigating the subject for solving the problems in the above-described conventional technologies. Namely, an object of the present invention is~~ It could be advantageous to provide polyamides and polyamide films having a high rigidity, a high thermal resistance and a high transparency, and optical members using the same and copolymers of the polyamides.

Please replace second paragraph on Page 3 as follows:

Summary

~~To accomplish the above object, the present invention provides~~ We provide a polyamide having at least an alicyclic or aromatic group exhibiting a light transmittance of 80 % or more for all lights with wavelengths of from 450 nm to 700 nm, and a polyamide film comprising this polyamide.

Please replace third paragraph on Page 3 as follows:

Further, ~~the present invention provides~~ we provide a polyamide comprising a structural unit represented by the chemical formula (I), (II), (III) or (IV) described later and satisfying the following equations (1) to (3) when molar fractions of structural units represented by the chemical formulae (I), (II), (III) and (IV) described later are referred to as "l", "m", "n" and "o", respectively, and a polyamide film comprising this polyamide.

$$50 < l + m + n \leq 100 \quad \dots (1)$$

$$0 \leq l, m, n, o \leq 100 \quad \dots (2)$$

$$0 \leq o \leq 50 \quad \dots (3)$$

Please replace fourth paragraph on Page 3 as follows:

~~Further, the present invention provides~~ We also provide various optical members using the

polyamide or the polyamide film, and copolymers of polyamide.

Please replace fifth paragraph on Page 3 as follows:

~~Where, it~~ It is preferred that the thickness of the film is in a range of 1 μm to 100 μm . Further, it is preferred that the light transmittance for a light with a wavelength of 400 nm is 60 % or more, and it is preferred that the Young's modulus in at least one direction of the film is 4 GPa or more. Furthermore, it is preferred that the thermal shrinkage in at least one direction of the film at a heat treatment condition of 200°C and 30 minutes is 1 % or less.

Please replace first paragraph on Page 4 as follows:

~~By the present invention, various~~ Various optical films such as retardation plates, protection films or substrates for flat panel displays can be made thinner and/or higher thermal-resistance.

Please replace second paragraph on Page 4 as follows:

The Best mode for carrying out the Invention

~~Hereinafter, the present invention will be explained in more detail together with desirable embodiments of the present invention.~~

Please replace third paragraph on Page 4 as follows:

In a polyamide our polyamides and ~~[[a]] polyamide film according to the present invention~~ films, the light transmittance for all lights with wavelengths of from 450 nm to 700 nm is 80 % or more. Preferably, the light transmittance is 85 % or more, and more preferably, 90 % or more. If the light transmittance for all lights with wavelengths of from 450 nm to 700 nm is 80 % or more, application to various optical uses such as retardation plates and protection films becomes possible. Here, because the polyamide ~~according to the present invention~~ has a large refractive index and exhibits a large surface reflection, it is difficult to obtain a measurement value greater than 90 % as the light transmittance in a case where the interface is air. For example, when ~~the~~ our polyamide

~~only according to the present invention~~ having a refractive index of 1.7 is placed in air (refractive index: 1.0), the reflection is presented by the following equation.

$$\text{Reflection (\%)} = (1.7 - 1.0)^2 / (1.7 + 1.0)^2 = 6.72 \%$$

Please replace paragraph spanning Pages 4 and 5 as follows:

In consideration of a process wherein a light having entered into a polyamide layer from an air layer passes to the air layer, an incident light of 100 % reflects by 6.72 % at the time of the incidence from the air layer to the polyamide layer, and it becomes 93.28 %. Further, because this light reflects again by 6.72 % among 93.28 % at the time of going out from the polyamide layer, only 87 % passes even in a case where absorption and diffusion are not present in the polyamide layer at all. However, because an optical film such as a retardation film is used generally by being adhered with another material, the reflection frequently becomes smaller than that in the above-described case where the interface is air. Further, it is understood that the light transmittance of the polyamide ~~according to the present invention~~ is very close to a theoretical limit value considering a surface reflection, and the absorption and diffusion in the film are small. Therefore, it can be used suitably as an optical film.

Please replace paragraph spanning Pages 5 and 6 as follows:

The polyamide ~~according to the present invention~~ can be used as various processed forms such as a varnish, a thin membrane, a film, a sheet and a molded material. Among these, when processed into a thin membrane or a film, the feature of the polyamide ~~according to the present invention~~ can be utilized and it is preferable. In a case of being used as a film, the thickness is preferably in a range of 0.01 μm to 1,000 μm , more preferably in a range of 1 μm to 100 μm , further more preferably in a range of 2 μm to 30 μm , still further more preferably in a range of 2 μm to 20 μm , and still further more preferably in a range of 2 μm to 10 μm . If the thickness of the film is more than

1,000 μ m, there is a case where the light transmittance decreases. Further, if the thickness of the film is less than 0.01 μ m, there is a case where the processing property decreases even if it employs a high-rigidity aromatic polyamide. By using a polyamide having at least an alicyclic or aromatic group, in particular, by using an aromatic polyamide, it can be achieved to make a film rigid, and to let the film exhibit excellent properties as an optical or electrical film even if the film is very thin as compared with other materials. Where, the thickness of the film is, of course, to be selected appropriately depending on the use.

Please replace first paragraph on Page 6 as follows:

In the polyamide ~~according to the present invention~~, it is possible to control the light transmittance by controlling the molecular structure, and to use properly depending upon the use. In the use requiring that a light transmittance is large as to a light with a short wavelength, for example, in a protection membrane for a recording medium using a blue or violet laser such as a BD (Blu-ray disc) or an AOD (advanced optical disc), or in a protection membrane for a germicidal lamp or a ultra-violet ray excitation fluorescent substance, it is preferred that the light transmittance for a light with a wavelength of 400 nm of the polyamide is 60 % or more. Further, by such a light transmittance for a light with a wavelength of 400 nm of 60 % or more, decomposition and deterioration of the polyamide ascribed to ultraviolet rays can be suppressed. More preferably, the light transmittance for a light with a wavelength of 400 nm is 65 % or more, further more preferably, 75 % or more, particularly preferably, 90 % or more. By the condition where the light transmittance for a light with a wavelength of 400 nm, which is in a region of near ultraviolet ray, is 60 % or more, the transparency of the film increases remarkably. Further, in the above-described uses, it is also preferred that the light transmittance for a light with a wavelength of 350 nm is 30 % or more.

Please replace paragraph spanning Pages 6 and 7 as follows:

A high thermal resistance is required also for a material employed in an equipment becoming a high temperature condition such as a projector or an equipment used under a high-temperature environmental condition such as a display device used in a vehicle interior. This can be realized by a condition where the material has a high glass transition temperature. In the polyamide and the polyamide film ~~according to the present invention~~, the glass transition temperature is preferably 120°C or higher, more preferably 200°C or higher, further more preferably 300°C or higher, particularly preferably 350°C or higher. By having a high glass transition temperature, it becomes possible to bear a vapor-deposition temperature of a metal such as ITO (indium oxide-tin), and it becomes possible to deposit the metal such as ITO similarly in a vapor deposition on a glass.

Please replace first paragraph on Page 7 as follows:

In the polyamide and the polyamide film ~~according to the present invention~~, it is preferred that a refractive index in at least one direction at a sodium D ray is 1.6 or more. In a case where the polyamide (film) ~~according to the present invention~~ is used as a resin having a high refractive index, it may be used either solely or together with another material. For example, it is possible to further increase the refractive index by dispersing particles having a high refractive index such as titanium oxide in the polyamide ~~according to the present invention~~. As examples of particles to be dispersed, for example, there are TiO₂, CeO₂, ZrO₂, In₂O₃, etc. It is preferred that the content of these particles 0.01 wt% or more and less than 99.9 wt% relative to the whole of the mixture of the polyamide or the polyamide film and the particles. The content is more preferably 20 wt% or more and less than 99.5 wt%, further preferably 50 wt% or more and less than 99.5 wt%.

Please replace second paragraph on Page 7 as follows:

~~In the present invention, if~~ If the refractive index at a sodium D ray is less than 1.6, for example, in a case where a high refractive-index membrane is formed as a combination with a low

refractive-index membrane, there is a case which reduces the antireflection effect. The above-described refractive index is preferably 1.65 or more, more preferably 1.7 or more. The larger the refractive index is, the higher the effect as a high refractive-index membrane is, and when utilized as an antireflection membrane, a sufficient effect can be exhibited by a thinner membrane. Further, in a case where the polyamide is applied to an optical fiber or an optical waveguide, the larger the above-described refractive index is, the smaller the optical loss can be suppressed.

Please replace paragraph spanning Pages 8 and 9 as follows:

In the polyamide film ~~according to the present invention~~, it is preferred that the Young's modulus in at least one direction is 4 GPa or more, because the film can resist against a force loaded at the time of being processed or used, and the flatness becomes better. Further, by the Young's modulus in at least one direction of 4 GPa or more, it becomes possible to form the film thin.

Please replace third paragraph on Page 9 as follows:

Further, it is preferred that the elongation at break of the polyamide film ~~according to the present invention~~ in at least one direction is 5 % or more, more preferably 10 % or more, in the measurement based on JIS-K7127-1989, because the frequency of film breakage at the time of forming and processing becomes less. Although the upper limit of the elongation at break is not particularly restricted, it is about 250 % in practice.

Please replace fourth paragraph on Page 9 as follows:

Further, it is preferred that the dielectric constant at 1 kHz of the polyamide film ~~according to the present invention~~ is 4 or less, more preferably 3.5 or less, most preferably 2 or less. By such a small dielectric constant, a delay of signal, when an electronic circuit is formed directly on an optical film, can be reduced.

Please replace paragraph spanning Pages 9 and 10 as follows:

In the film ~~according to the present invention~~, it is preferred that the thermal shrinkage in at least one direction, at the time of being heat treated at 200°C for 30 minutes under a condition where a tension substantially is not applied, is 1 % or less, because a dimensional variation at the time of processing and a variation of retardation property can be suppressed. The thermal shrinkage is more preferably 0.5 % or less, further more preferably 0.3 % or less. ~~Where, the~~ The thermal shrinkage is defined by the following equation.

Thermal shrinkage (%)=((length before heat treatment-length after heat treatment and cooling)/(length before heat treatment)x100

Please replace second paragraph on Page 10 as follows:

Although optical films can be classified roughly into a group for use where an optical anisotropy preferably exist such as polarizing films and retardation films and a group for use where an optical anisotropy preferably does not exist (optically isotropic) such as substrates for liquid crystal displays and protection films, the film ~~according to the present invention~~ can be controlled in optical anisotropy, and it can be used adequately for both uses of optical anisotropy and isotropy.

Film exhibiting no optical anisotropy:

Please replace paragraph spanning Pages 10 and 11 as follows:

When the aromatic polyamide film ~~according to the present invention~~ is used as a substrate of a liquid crystal display and a protection film, it is preferred that a retardation of a light with a wavelength of 550 nm of the film is less than 10 nm. Such a retardation value can be realized, for example, by not performing a stretching at the time of forming a film, or by stretching a film at uniform draw ratios in respective directions (in a biaxial stretching, by setting the same draw ratio in both the longitudinal and transverse directions). In a case of being employed for the above-described uses, this retardation value is more preferably 5 nm or less, further more preferably 2 nm or less. By

such a very small retardation value of a light with a wavelength of 550 nm being 10 nm or less, the film is suitable as a protection film, in particular, as a protection film for an optical disc.

Film exhibiting an optical anisotropy:

Please replace first paragraph on Page 11 as follows:

In this case, by a condition where a retardation of a light with a wavelength of 550 nm of the film is in a range of 10 to 2,000 nm, the advantages ~~according to the present invention~~ can be further increased in a case where the film is used as an optically anisotropic film such as a polarizing film or a retardation film. When the retardation is in this range, an excellent color tone repeatability can be exhibited in a case where the film is used as an optical retardation film, in particular, as a wide-band 1/4 wavelength retardation plate. Such a retardation value can be realized, for example, by performing a stretching in a specific direction (unidirectionally), or by stretching a film at a draw ratio biased in a specific direction. In a case of being employed for the above-described uses, this retardation value is more preferably in a range of 100 to 550 nm, further more preferably in a range of 130 to 380 nm.

Please replace second paragraph on Page 11 as follows:

Further, ~~in the film according to the present invention~~, to satisfy the following equation with respect to the dispersion property in retardation, that is, the dependency of wavelength on retardation, becomes a preferable embodiment in a case of being applied to the use of a 1/4 wavelength retardation plate.

$$R(450)/R(550)=1.03 \text{ to } 1.25$$

$$R(650)/R(550)=0.80 \text{ to } 0.95$$

Please replace first paragraph on Page 12 as follows:

In a case where the retardation dispersion property of the polyamide film ~~according to the~~

~~present invention~~ is in the above-described range, when the polyamide film ~~according to the present invention~~ is laminated with a cyclopolyolefin-group, polycarbonate-group, triacetyl cellulose-group or acrylic-group film, etc, a further better retardation dispersion property can be exhibited as a 1/4 wavelength retardation plate, as compared with the polycarbonate-group or triacetyl cellulose-group film used in the conventional technology.

Please replace second paragraph on Page 12 as follows:

The retardation dispersion property of the film ~~according to the present invention~~ is more preferably in the following ranges.

$$R(450)/R(550)=1.1 \text{ to } 1.22$$

$$R(650)/R(550)=0.82 \text{ to } 0.93$$

Please replace third paragraph on Page 12 as follows:

As a retardation plate, there is a single layer type formed by a single layer of a retardation film other than a laminate type wherein two or more retardation films are laminated. In a case where the polyamide film ~~according to the present invention~~ is used for this single layer type, it is preferred that, the longer the wavelength is, the larger the retardation becomes. In particular, it is preferred that the relationship of $R(450)/R(550)$ is satisfied.

Please replace first paragraph on Page 13 as follows:

In the polyamide film ~~according to the present invention~~, it is preferred that a coefficient of moisture absorption at a condition of 25°C and 75 %RH is 6 % or less, more preferably 4 % or less, further more preferably 2 % or less, because a variation of property due to the variation of humidity at the time of using or processing becomes smaller. Where, the "coefficient of moisture absorption" is determined by the following method. First, a film is sampled by about 0.5 g, after it is heated at 120°C for 3 hours for dehumidification, the temperature is lowered down to 25°C so as not to absorb

moisture, and the weight after the temperature lowering is measured precisely at a unit of 0.1 mg (the weight at this time is referred to as W0). Next, it is left at 25°C under an atmosphere of 75 %RH for 48 hours, thereafter, the weight is measured, the measured weight is referred to as W1, and the coefficient of moisture absorption is determined using the following equation.

$$\text{Coefficient of moisture absorption (\%)} = ((W1 - W0) / W1) \times 100$$

~~Here, although~~ Although a lower coefficient of moisture absorption is preferred, the lower limit is about 0.03 % in practice.

Please replace second paragraph on Page 13 as follows:

~~In the polyamide film according to the present invention, it~~ It is preferred that a coefficient of thermal expansion from 80°C to 120°C is in a range of 50 to 0 ppm/°C. The coefficient of thermal expansion is determined in a temperature-lowering process after heating up to 150°C. When an initial sample length at 25°C and 75 %RH is referred to as L0, a sample length at a temperature of T1 is referred to as L1 and a sample length at a temperature of T2 is referred to as L2, the coefficient of thermal expansion from T1 to T2 is determined by the following equation.

$$\text{Coefficient of thermal expansion (ppm/°C)} = (((L2 - L1) / L0) / (T2 / T1)) \times 10^6$$

Please replace paragraph spanning Pages 13 and 14 as follows:

Further, ~~in the polyamide film according to the present invention,~~ it is preferred that a coefficient of moisture expansion at 25°C from 30 %RH to 80 %RH is in a range of 50 to 0 ppm/%RH. The method for determining the coefficient of moisture expansion is as follows. First, a sample is fixed in a high-temperature and high-humidity vessel so that the width of the sample is 1 cm and the length of the sample is 15 cm, it is dehumidified down to a predetermined humidity (about 30 %RH), and after the length of the sample film becomes constant, humidification is carried out (about 80 %RH). Although the sample begins to elongate by moisture absorption, the moisture

absorption reaches an equilibrium condition after about 24 hours, and the elongation of the film also reaches an equilibrium condition. The coefficient of moisture expansion is calculated from the amount of elongation at that time by the following equation.

Coefficient of moisture expansion (ppm/%RH)

$$=(\text{elongation amount (cm)})/(\text{sample length (cm)} \times (\text{difference in humidity})) \times 10^6$$

Please replace second paragraph on Page 14 as follows:

The polyamide and polyamide film ~~according to the present invention~~ have a large pencil hardness. The pencil hardness is preferably HB or more, more preferably H or more, and further more preferably 3H or more. Particularly, if the pencil hardness is 3H or more, because a polyamide membrane also acts as a hard coating layer, such a condition is preferred.

Please replace paragraph spanning Pages 14 through 16 as follows:

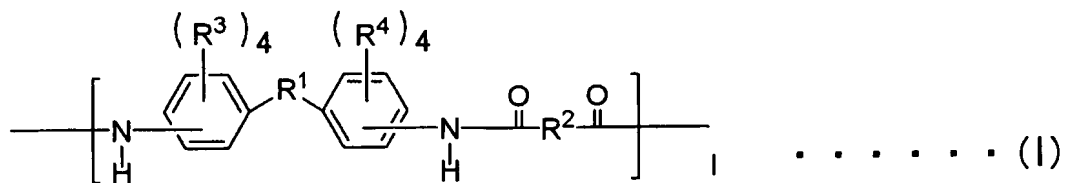
The polyamide ~~according to the present invention~~ can have both of a property of a high transparency and properties of high rigidity and high thermal resistance by containing the following structural units. Namely, it is preferred that the polyamide comprises a structural unit represented by the following chemical formula (I), (II), (III) or (IV) and satisfies the following equations (1) to (3) when molar fractions of structural units represented by the following chemical formulae (I), (II), (III) and (IV) are referred to as "l", "m", "n" and "o", respectively.

$$50 < l + m + n \leq 100 \quad \dots (1)$$

$$0 \leq l, m, n, o \leq 100 \quad \dots (2)$$

$$0 \leq o \leq 50 \quad \dots (3)$$

Chemical formula (I):



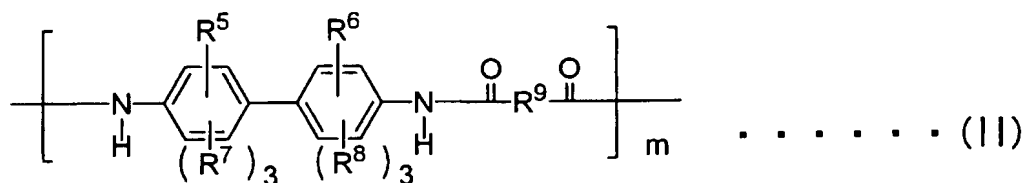
R¹: a group having at least a ring structure,

R²: an aromatic group,

R³: an arbitrary group, and

R⁴: an arbitrary group.

Chemical formula (II):



R⁵: an electron-withdrawing group,

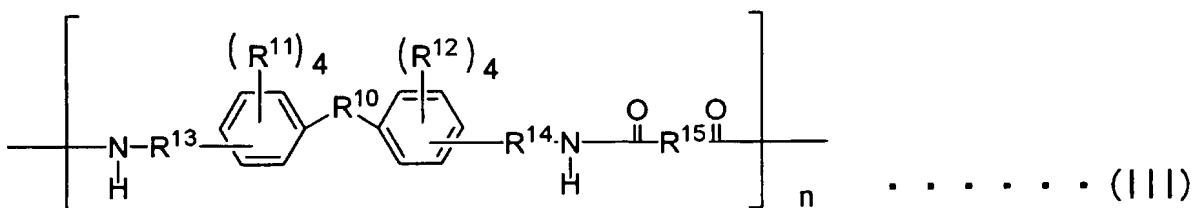
R⁶: an electron-withdrawing group,

R⁷: an arbitrary group,

R⁸: an arbitrary group, and

R⁹: an aromatic group.

Chemical formula (III):



R¹⁰: a group containing Si, a group containing P, a group containing S, a halogenated hydrocarbon group or a group containing an ether linkage (where, structural units having these groups may be present together in a molecule.)

R¹¹: an arbitrary group,

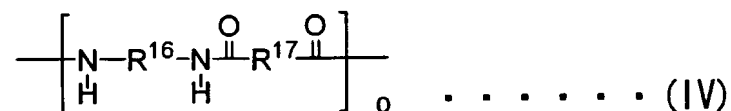
R¹²: an arbitrary group,

R¹³: linked directly or a group having a carbon number of 6 to 12 which has at least a phenyl group as an inevitable component,

R¹⁴: linked directly or a group having a carbon number of 6 to 12 which has at least a phenyl group as an inevitable component, and

R¹⁵: an aromatic group.

Chemical formula (IV):



R¹⁶: an aromatic group, and

R¹⁷: an aromatic group.

Please replace third paragraph on Page 17 as follows:

~~In the present invention,~~ as As long as the ranges represented by the above-described equations are satisfied, other components, for example, polyimide, polyetheretherketone, polyetherketoneketone, polyethersulfone and cyclopolyolefin and other structural units, for example, imide, ester, ether and ketone may be contained. Aromatic or ring compounds are preferred as the other components or the other structural units.

Please replace first paragraph on Page 21 as follows:

In the chemical formula (III), if an appropriate group is not selected as R¹⁰, there is a case where the polyamide is colored. Accordingly, ~~in the present invention,~~ by selecting a group containing Si, a group containing P, a group containing S, a halogenated hydrocarbon group or a group containing an ether linkage (where, structural units having these groups may be present

together in a molecule) as the R^{10} , the forming of a charge-transfer complex is obstructed, and the transparency of the polyamide is increased. Concretely, $-SO_2-$, $-O-$, $-C(CF_3)_2-$, $-(CCl_3)_2-$, $-(CBr_3)_2-$, $-CF_2-$, $-CCl_2-$ and $-CBr_2-$ are preferable, and $-SO_2-$ and $-C(CF_3)_2-$ are most preferable.

Please replace paragraph spanning Pages 22 and 23 as follows:

[[A]] It is further preferable embodiment of the present invention is preferred that the structural units represented by the above-described chemical formulae (I) and (IV) and the molar fraction of the structural unit represented by the chemical formula (I) is 50 % or more. In a case where a polyamide is produced industrially, usually, a raw material supply system comprising a pair of storage tanks, a measuring tank, pipes, pumps, etc. is necessary relatively to a single kind of raw material. For example, in a case where all the structural units represented by the formulae (I), (II), (III) and (IV) are contained, because at least four kinds of diamines and one kind of acidic dichloride are necessary as raw materials, five or more raw material supply systems become necessary. However, in a case where only the structural units represented by the formulae (I) and (IV) are contained, because the raw material supply systems are enough at least 3 sets and at most 4 sets, the cost for making the raw material supply systems and the running cost can be preferably reduced. Further, although, in a case where many kinds of raw materials are used, the time for polymerization becomes long depending upon the number of the kinds, in a case where only the structural units represented by the formulae (I) and (IV) are contained, because the number of the kinds of the raw materials are 3 or 4 and it is small, the time for polymerization is short, and it is possible to reduce the cost for the polymerization, and therefore, such a condition is preferable.

Please replace first paragraph on Page 23 as follows:

Further, ~~another~~ it is also preferable embodiment of the present invention is that the structural units represented by the above-described chemical formulae (II) and (IV) and the molar fraction of

the structural unit represented by the chemical formula (II) is 50 % or more. By employing such a structure, the system cost and the production cost can be reduced as compared with those in a case where all the structural units represented by the formulae (I), (II), (III) and (IV) are contained.

Please replace second paragraph on Page 23 as follows:

[[A]] It is further preferable ~~embodiment of the present invention~~ is that the structural units represented by the above-described chemical formulae (III) and (IV) and the molar fraction of the structural unit represented by the chemical formula (III) is 50 % or more. By employing such a structure, the system cost and the production cost can be reduced as compared with those in a case where all the structural units represented by the formulae (I), (II), (III) and (IV) are contained.

Please replace third paragraph on Page 23 as follows:

~~In the present invention,~~ by By preparing a polyamide film containing the polyamide comprising the above-described structure, it is excellent in transparency and it can be used suitably for optical use, etc.

Please replace fourth paragraph on Page 23 as follows:

Hereinafter, the methods for producing the polyamide ~~according to the present invention~~ and the composition thereof, and for preparing a film as a formed material, will be explained, taking an aromatic polyamide as an example, but, of course, the present invention is not restricted by this.

Please replace paragraph spanning pages 25 and 26 as follows:

For the purpose of surface forming or improvement of processing property, an inorganic or organic additive may be contained in the polyamide. Although the additive may be colorless or colored, a colorless and transparent additive is preferable ~~in order~~ not to damage the features of the polyamide film ~~according to the present invention~~. As the additive for the purpose of surface forming, for example, SiO₂, TiO₂, Al₂O₃, CaSO₄, BaSO₄, CaCO₃, carbon black, carbon nanotube,

fullerene, zeolite, and other metal fine powder can be raised as an inorganic particle. Further, as the preferable organic particle, for example, particle comprising an organic polymer such as crosslinked polyvinylbenzene, crosslinked acryl, crosslinked polystyrene, polyester, polyimide, polyamide or fluoro resin, or an inorganic particle covered with any of these organic polymers, can be raised.

Please replace first paragraph on Page 26 with the following:

Where, it is possible to add a pigment to the polyamide film ~~according to the present invention~~, thereby making a colored film. As the pigment, both of an inorganic pigment such as cobalt blue and an organic pigment such as phthalocyanine can be suitably used. Although, in the conventional aromatic polyamide film, the film itself is colored and therefore a target color tone cannot be obtained even if the above-described pigment is added, in the film ~~according to the present invention~~, because the color of the film itself is little, it becomes possible to obtain a film having a color tone of the original pigment. The film thus colored can be used, for example, as a luminaire member such as a reflector or a cover of a head light of a vehicle or an airplane, and further, can be used suitably for lighting equipment used in a shop or housing.

Please replace second paragraph on Page 26 as follows:

Further, a preferable copolymer comprising the above-described polyamide ~~according to the present invention~~ at a content of 50 wt% or more is also provided. As the other polymer component, for example, polycarbonate, cyclopolyolefin, polystyrene, etc. can be raised, and this copolymer has both of the features of the polyamide ~~according to the present invention~~ and the features of the other polymer component, for example, can be used suitably for a retardation plate, a protection film and a substrate. Further, when a polymer having a negative birefringence is formed in a copolymer together with the polyamide according to the present invention, the copolymer preferably exhibits a good wavelength dispersion property.

Please replace paragraph spanning Pages 26 and 27 as follows:

Further, a photosensitive polyamide giving a photosensitivity to the above-described polyamide ~~according to the present invention~~ also can be produced. By this, a development to the uses such as optical adhesives and lenses becomes possible. As the method for giving a photosensitivity, for example, there is a method for substituting the end of the principal chain of the polyamide ~~according to the present invention~~ for a reactive group and further adding a photo-curing agent, etc.

Please replace paragraph spanning Pages 27 and 28 as follows:

The stretching is carried out preferably in a range of a plane magnification of 0.8 to 8 (the "plane magnification" is defined as a value determined by dividing an area of a film after stretching with an area of a film before stretching. A value of 1 or less means being relaxed.), more preferably in a range of 1.3 to 8. Further, the heat treatment is carried out at a temperature in a range of 200°C to 500°C, preferably in a range of 250°C to 400°C, for a time of several seconds to several minutes. Further, it is effective to gradually cool the film after stretching or heat treatment, and it is effective to cool the film at a cooling speed of 50°C/sec. or lower. The film obtained from the polyamide ~~according to the present invention~~ may be either a single layer film or a laminated film. Furthermore, the stretching is preferably carried out in the thickness direction in addition to the plane direction, because the film can exhibit a good property as a retardation film.

Please replace first paragraph on Page 28 as follows:

The film ~~according to the present invention~~ can be applied to any use requiring a transparency such as an arbitrary retardation film including a 1/4 wavelength retardation film and a 1/2 wavelength retardation film, a polarizing film, a circular polarizing film, a protection film, a protection film for an optical disc, a touch panel, a substrate for flexible print circuit, a substrate for

semiconductor mounting, a substrate for multi-layer laminated circuit, a circuit substrate, a capacitor, a printer ribbon, an acoustic vibration plate, a substrate for a flat panel display, a base film for a solar battery (a substrate for a solar battery) or a protection film for a solar battery. Among these, particularly when used as structural members of various film members represented by display members such as polarizing plates, retardation plates, anti-reflection plates, substrates, etc. and optical recording members such as substrates for optical discs and protection films thereof, because the film is excellent in dimensional stability at the time of processing or using and in stability of optical properties, it can be suitably used.

Please replace second paragraph on Page 28 as follows:

For the above-described uses, either a substantially non-oriented film (isotropic optically) or an oriented film (anisotropic optically) realized by carrying out stretching may be used, and both films can be suitably applied, but, particularly, an oriented film is more preferable. Concretely, when the film is applied to a polarizing plate, a retardation plate, in particular, the above-described 1/4 wavelength retardation plate, the advantages ~~according to the present invention~~ can be most obtained.

Please replace first paragraph on Page 29 as follows:

~~Hereinafter, the present invention will be explained more concretely raising examples.~~

Please replace paragraph spanning Page 29 through Page 32 as follows:

~~Where,~~ The methods used for determining properties and for estimating advantages are as follows.

(1) Young's modulus:

The Young's modulus was determined at a temperature of 23°C and a relative humidity of 65 % using a robot tensilon RTA (produced by Orientec Co., Ltd). The specimen was prepared by

referring to the film forming direction or the movement direction of a bar coater as MD direction and a direction perpendicular to the MD direction as TD direction and by making a sample with a width of 10 mm and a length of 50 mm in MD direction or TD direction. The tensile speed was 300 mm/min. Where, a point at which the load have passed through 1 N from the start of the examination was defined as an origin of elongation.

(2) Tensile strength:

The tensile strength was determined at a temperature of 23°C and a relative humidity of 65 % using a robot tensilon RTA (produced by Orientec Co., Ltd). The specimen was prepared by referring to the film forming direction or the movement direction of a bar coater as MD direction and a direction perpendicular to the MD direction as TD direction and by making a sample with a width of 10 mm and a length of 50 mm in MD direction or TD direction. The tensile speed was 300 mm/min. Where, a point at which the load have passed through 1 N from the start of the examination was defined as an origin of elongation.

(3) Elongation at breakage:

The elongation at breakage was determined at a temperature of 23°C and a relative humidity of 65 % using a robot tensilon RTA (produced by Orientec Co., Ltd). The specimen was prepared by referring to the film forming direction or the movement direction of a bar coater as MD direction and a direction perpendicular to the MD direction as TD direction and by making a sample with a width of 10 mm and a length of 50 mm in MD direction or TD direction. The tensile speed was 300 mm/min. Where, a point at which the load have passed through 1 N from the start of the examination was defined as an origin of elongation.

(4) Pencil hardness:

The pencil hardness was determined base on JIS K-5400-1979.

Measurement device: Heidon surface property tester

(5) Glass transition temperature (T_g) [DMA measurement]

Measurement device: viscoelasticity measuring device

EXSTAR6000 (produced by Seiko Instruments Inc.)

Measurement frequency: 1 Hz

Temperature elevation speed: 2°C/min.

Glass transition temperature (T_g): Based on ASTM E1640-94, an inflection point of E' was defined as T_g. Because data could not be obtained in a region higher than 360°C by the limit of the device, such a case was indicated as "360°C or more" in the Table, and in such a case the measurement due to DSC was carried out.

(6) Glass transition temperature (T_g) [DSC measurement]

Measurement device: robot DSC RDC220 (produced by Seiko Instruments Inc.)

Temperature elevation speed: 10°C/min.

Glass transition temperature (T_g): An inflection point of DSC curve was defined as T_g.

(7) Total light transmittance:

The total light transmittance was determined using the following measurement device.

Measurement device: direct reading haze meter HGM-2DP

(for C light source, produced by Suga Test Instruments Co., Ltd.)

Light source: halogen lamp 12V, 50W

Light-intercepting property: 395-745 nm

Optical condition: based on JIS-K7105-1981

Where, in a case where a block-like film or a resin having a form other than a thin-film form is determined, the measurement is carried out using a sample having a thickness of 10μm. In a case

where it is difficult to prepare a sample, the determination is carried out by converting the thickness into 10 μ m using the following equation. Of course, even in a case where only a sample having a thickness more than 10 μ m can be obtained, the following conversion method can be applied.

Light transmittance or Total light transmittance

at the condition of 10 μ m (%): T10

Thickness (μ m): L (application range: 0.1 angstrom-10 mm)

Light transmittance or Total light transmittance

at the condition of a thickness of L: TL

$$T10=100-((100-TL)/(10/L))$$

However, in a case where the thickness is more than 10 μ m and the total light transmittance is 80 % or more, because it is explicit that a total light transmittance is 80 % or more also at a condition of 10 μ m, the conversion into a thickness of 10 μ m is not always necessary.

(8) Haze:

The haze was determined using the following measurement device.

Measurement device: direct reading haze meter HGM-2DP

(for C light source, produced by Suga Test Instruments Co., Ltd.)

Light source: halogen lamp 12V, 50W

Light-intercepting property: 395-745 nm

Optical condition: based on JIS-K7105-1981

(9) Transparency of film (Light transmittance):

A light transmittance for a light with each wavelength was determined using the following measurement device.

$$\text{Light transmittance (\%)}=(T1/T0)\times100$$

Where, T1 is an intensity of a light having passed through a sample, and T0 is an intensity of a light having passed through the same distance in air except passing through a sample.

Measurement device: UV measurement device U-3410

(produced by Hitachi Instruments Service Co., Ltd.)

Range of wavelength: 300 nm to 800 nm

Measurement speed: 120 nm/min.

Measurement mode: transmitting

Please replace first paragraph on Page 32 as follows:

~~Where, in~~ In a case where a block-like film or a resin having a form other than a thin-film form is determined, the measurement is carried out using a sample having a thickness of 10 μ m. In a case where it is difficult to prepare a sample, the determination is carried out by converting the thickness into 10 μ m using the following equation. Of course, even in a case where only a sample having a thickness more than 10 μ m can be obtained, the following conversion method can be applied.

Light transmittance or Total light transmittance

at the condition of 10 μ m (%): T10

Thickness (μ m): L (application range: 0.1 angstrom-10 mm)

Light transmittance or Total light transmittance

at the condition of a thickness of L: TL

$$T10=100-((100-TL)/(10/L))$$

Please replace paragraph spanning Pages 37 and 38 as follows:

~~Where, in~~ In Table 1, diamine and acidic chloride were used at a same mole as the raw material in all Examples other than Example 22 and Examples 33 and 34. In Example 22, a rate, so

that diamine became 101 moles (1 mole excessive) relative to 100 moles of acidic chloride, was employed. In Examples 33 and 34, a rate, so that acidic chloride became 100.5 moles (0.5 mole excessive) relative to 100 moles of diamine, was employed.